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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,003	12/19/2006	Philippe Krafft	291453US0PCT	7750

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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KEYS, ROSALYND ANN

ART UNIT	PAPER NUMBER
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1621

NOTIFICATION DATE	DELIVERY MODE
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08/24/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/580,003	<b>Applicant(s)</b> KRAFFT ET AL.	
	<b>Examiner</b> ROSALYND KEYS	<b>Art Unit</b> 1621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 5) ☒ Claim(s) 77-79,85-96,98 and 99 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 77-79,85-96,98 and 99 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/18/11; 4/6/11 &amp; 6/1/11</u> .                            | 6) <input type="checkbox"/> Other: ____.                          |

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## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 77-79, 85-96, 98 and 99 are pending.

Claims 77-79, 85-96, 98 and 99 are rejected.

Claims 1-76, 80-84 and 97 are cancelled.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 28, 2011 has been entered.

### ***Information Disclosure Statement***

3. The information disclosure statements submitted on March 18, 2011; April 6, 2011; and June 1, 2011 have been considered by the examiner.

### ***Response to Arguments***

4. Applicant's arguments filed February 28, 2011 have been fully considered but they are not persuasive.

The applicants submit that neither DE '308 nor Britton use glutaric acid, adipic acid, or a poly carboxylic acid selected from tri- and tetra-carboxylic acids in a process for producing dichloropropanol, but instead teach the use of acetic, propionic, formic, succinic, etc. acids.

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This submission is not persuasive because both DE '308 and Britton teach that one can use an organic carboxylic acid as catalyst. Neither reference limits the suitable carboxylic acid to those expressly disclosed therein. Satoshi teach the use of C1-15 mono- or polycarboxylic acids and expressly discloses the use of acetic acid and adipic acid for use as a chlorination catalyst for chlorinating an alcohol. Novelli teach the use of a tricarboxylic acid in examples 11 and 12 for preparing mono- and dichlorohydrins of glycerol from glycerol and HCl. Thus, since both DE '308 and Britton teach that one can use an organic carboxylic acid as catalyst in their invention one having ordinary skill in the art would have found it obvious to utilize the organic carboxylic acids of Satoshi et al. or Novelli in the process of DE '308 or Britton, since Satoshi et al. and Novelli have shown that one can use either a mono- or polycarboxylic acid as a chlorination catalyst for the chlorination of an alcohol with hydrogen chloride. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

The applicants submit that in viewing the actual article of Novelli that examples 11 and 12 do not use a " $(\text{CO}_2\text{H})_3$ " acid.

This submission is not persuasive because the abstract provided by the applicants in the IDS filed March 12, 2010 discloses that in examples 11 and 12 a " $(\text{CO}_2\text{H})_3$ " acid was used. The applicants have not provided the actual article of Novelli which disproves this disclosure.

The applicants submit that Satoshi describes chlorination of certain ether compounds and that there is no evidence of record that one of ordinary skill in the art would believe that the reaction conditions, reactants, etc. pertinent to the reaction of ethers would be transferrable to glycerol.

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This submission is not persuasive because ("A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem."). see *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992). In the instant case Satoshi discloses the use of mono- and polycarboxylic acids as suitable chlorination catalysts for a reaction between an alcohol and hydrogen chloride. Thus, although the alcohol of Satoshi is an ether alcohol, whereas glycerol is not Satoshi et al. is nonetheless pertinent to the teachings of DE '308 and Britton, since it discloses carboxylic acids which are suitable as chlorination catalysts.

The applicants' submission with regard to GB '633 is not persuasive because GB '633 was applied for its teaching that epoxy resins may be obtained by action of epichlorohydrin on a phenol having at least two hydroxyl groups (see col. 1, lines 19-24) and not its teaching of chlorination of glycerol. This teaching is provided by DE '308 and Britton.

5. For the above reasons, the rejection of claims 77-79 85-96, 98 and 99 under 35 U.S.C. 103(a) as being unpatentable over DE 197308 and Britton et al. (US 2,144,612) in view of Novelli (Anal. Farm. bioquim) and Satoshi et al. (JP 62-242638) and further in view of GB 984,633 is maintained.

The provisional obviousness-type double patenting rejection is also maintained, since it is not the only rejection remaining in the instant application.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 77-79, 85-96, 98 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 197308 and Britton et al. (US 2,144,612) in view of Novelli (Anal. Farm. biochim) and Satoshi et al. (JP 62-242638) and further in view of GB 984,633.

DE 197308 (see English Translation pages 1-5) and Britton et al. (see entire disclosure, in particular page 1, col. 1, line 4 to col. 2, line 54; the Examples; page 3, column 1, line 54 to column 2, line 48; and claim 3), each teach producing dichlorohydrins of glycerol, i.e., dichloropropanols, by reacting glycerol with hydrogen chloride in the presence of an organic carboxylic acid. The reactions are conducted in a reaction vessel. The carboxylic acid can be added together with glycerol and/or solvent (see the Examples of DE 197308 and Britton et al.). Britton et al. teach the use of water-immiscible organic solvents (see page 1, column 1, lines 31-

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41 and page 3, column 1, line 54 to column 2, line 24). Britton et al. teach that the reaction can be continuous (see page 3, right column, lines 25-48). Britton et al. further teach that dichlorohydrins are useful for preparing derivatives such as epichlorohydrin (see col. 2, lines 36-47). Britton et al. also teach that an aqueous hydrochloric acid solution may be substituted for the gaseous hydrogen chloride (see page 3, column 1, lines 54-60) and uses an aqueous acid containing 35.9 % hydrogen chloride (see example 4).

DE 197308 and Britton et al., differ from the instant claims in that they do not teach the use of the specifically claimed organic carboxylic acids. However, DE 197308 and Britton et al., do not limit the organic carboxylic acids that can be used, therefore one having ordinary skill in the art would reasonably believe that any organic carboxylic acid would be suitable for use as the catalyst.

Novelli (see abstract) teach producing dichlorohydrins of glycerol, i.e., dichloropropanols, by reacting glycerol with hydrogen chloride in the presence of an organic carboxylic acid including a tricarboxylic acid.

Satoshi et al. (see abstract) teach that carboxylic acids are suitable for use as a chlorinating catalyst for the reaction of an alcohol with hydrogen chloride. The carboxylic acids include C1-C15 mono and polycarboxylic acids.

One having ordinary skill in the art at the time the invention was made would have found it obvious to utilize any known carboxylic acid in the process of DE 197308 and Britton et al., including the carboxylic acids disclosed by Novelli and Satoshi et al., since DE 197308 and Britton et al., do not limit the carboxylic acids that can be utilized and Novelli has shown that tricarboxylic acids are suitable for preparing dichlorohydrins of glycerol and Satoshi et al. has shown that mono and polycarboxylic acids are suitable chlorinating catalysts. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness

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determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Britton et al. further differ from the instant claims in that Britton et al. do not teach producing epoxy resins from the epichlorohydrin.

GB 984,633 teach that epoxy resins may be obtained by action of epichlorohydrin on a phenol having at least two hydroxyl groups (see col. 1, lines 19-24).

One having ordinary skill in the art at the time the invention was made would have found it obvious that the epichlorohydrin disclosed by Britton et al. could be used to obtain an epoxy resin, since GB 984,633 teach that epoxy resins may be obtained by action of epichlorohydrin on a phenol.

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 77-79, 85-96, 98 and 99 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending



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Application No. 12/502,342. Although the conflicting claims are not identical, they are not patentably distinct from each other because one having ordinary skill in the art at the time the invention was made would have found it obvious utilize a reactor made out of one of the materials disclosed in copending Application No. 12/502,342, since these materials are known to be inert to corrosive substances such as hydrochloric acid and thus would allow the reaction to proceed without contamination to the reactant product from the reaction vessel.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 77, 87, 88, 90, 91, 93-96 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 8-10 and 13-21 of copending Application No. 12/745,802 in view of DE 197308 and Britton et al. (US 2,144,612) and further in view of Novelli (Anal. Farm. bioquim) and Satoshi et al. (JP 62-242638). Copending Application No. 12/745,802 is similar to the instant claims except that copending Application No. 12/745,802 does not disclose carrying out the chlorination reaction in the presence of glutaric acid, adipic acid, a tri-carboxylic acid, nor a tetra-carboxylic acid. The disclosures of DE 197308, Britton et al. (US 2,144,612), Novelli (Anal. Farm. bioquim) and Satoshi et al. (JP 62-242638) are discussed above. One having ordinary skill in the art would have found it obvious that a glutaric acid, adipic acid, tri-carboxylic acid, or a tetra-carboxylic acid could be used in the process of Copending Application No. 12/745,802, since DE 197308 and Britton et al. have shown that an organic carboxylic acid is a suitable chlorination catalyst for a reaction of glycerol with hydrogen chloride to prepare dichloropropanol and Novelli and Satoshi have shown that adipic acid and a tricarboxylic acid are suitable as chlorination catalysts for a reaction involving an alcohol and hydrogen chloride. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness

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determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

This is a provisional obviousness-type double patenting rejection.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROSALYND KEYS whose telephone number is (571)272-0639. The examiner can normally be reached on M-F 5:30 am-7:00 am and 8:30 am-3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rosalynd Keys/  
Primary Examiner, Art Unit 1621  
August 18, 2011